

ENV101: Environmental Science Term 149

Credit Hours: 4

Prerequisites: NONE

Course Description

Environmental Science is a general course for non-biology majors in which students will explore the following basic principles: concepts required to understand interrelationships of the environment and the natural world; environmental problems both natural and man-made; risks associated with air, water, land pollution; health of humans and ecosystems; deforestation and climate change; overpopulation and environmental law, economics, and ethics.

Instructor Contact Information

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| Instructor Name | Gerard Arthus |
| Instructor Email | Garthus801@gmail.com |
| Instructor Phone | Home: 574-217-8726 Cell: 631-335-5250 |

Course Length

The college evaluates each course in terms of quarter hours of credit. One unit of credit is usually equivalent to a minimum of ten academic instruction hours of lecture and examination, twenty hours of skill development, or thirty hours of externship, or a combination of the three. An academic instructional hour is fifty minutes.

This class will meet for the equivalent of a minimum of 40 instructional hours or as otherwise scheduled by the college and at least in conformance with this minimum and the Syllabus. As specified under the Method of Instruction section of this Outline, the instructor will ensure that the minimum total class sessions presented consist of one hundred percent lecture. As specified under the Method of Instruction section of this syllabus, the instructor will ensure that the minimum total class sessions presented consist of direct faculty instruction or appropriate classroom activity.

All course offerings require outside preparation time, which is approximately two hours per lecture instructional hour and/or one hour per skill development instructional hour, depending on the background, interest, abilities, and motivation of the individual student.

Course Objectives

Through in-class and out-of-class assignments and testing on criterion-reference instructions with a minimum score of 64% accuracy, the student will:

- 1 Understand the major environmental problems facing civilization
- 2 Appreciate the limits of science and technology in addressing environmental problems
- 3 Understand the impact environmental science has on daily living and working
- 4 Appreciate how philosophy and cultural norms impact the perception of environmental problems solutions
- 5 Effectively communicate and transfer scientific knowledge
- 6 Understand and define terminology used in environmental science
- 7 Summarize/describe global and regional environmental processes and systems
- 8 Evaluate environmental information and data using scientific principles and concepts
- 9 Discuss human impact on biotic communities, soil, water and air
- 10 Apply learned information to postulate environmental solutions and scenarios
- 11 Discuss the importance of the environment and ecology
- 12 Describe food chains and their workings

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- 13 Describe how ecosystems work and describe the energy flow in these systems
- 14 Discuss the importance of ethics in science
- 15 Discuss the importance of bio-diversity
- 16 List and describe the domains of life
- 17 Diagram and describe the interrelationships of organisms in the environment (ecosystem)
- 18 Discuss and describe ecosystems, ecological pyramids, nutrients and chemical cycles
- 19 Describe energy flow and transfer in our ecosystem
- 20 List and describe the factors regulating the cycles of water, carbon, chemicals and nitrogen
- 21 Discuss the importance of the sun in the atmospheric circulation

Grade-book

A student's performance in this course will be evaluated using a variety of the areas listed below. Instructors must use a minimum of three (**homework, tests and a final exam are required**), and it is recommended that instructors use all five of the areas in your evaluation.

The exact weight to be given to any particular area is determined by the instructor and will normally fall within the ranges listed below.

| Area | Percentage for this Course | Suggested Range |
|------------------------|----------------------------|-----------------|
| Final Exam | 25% | 20 – 25% |
| Tests | 30% | 20 – 40% |
| Homework | 15% | 10 – 15% |
| Project/Research Paper | 20% | 20 – 25% |
| Class Participation | 10% | 10 – 15% |
| TOTAL | 100% | |

| Letter Grade | Points | Explanation |
|--------------|------------|---------------|
| A | 94-100 | Excellent |
| B | 84-93 | Above Average |
| C | 74-83 | Average |
| D | 64-73 | Below Average |
| F | 63 & Below | Failure |

Textbook & Instructional Material

Miller, G. Tyler and S. E. Spoolman. Environmental Science. 14th ed. Belmont, CA: Cengage, 2013.

The instructor might utilize additional instructional materials as provided by the publisher.

Course Outline

Term: 149

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| Class Date: <u>Week 1 – 17 September 2014</u> Chapter 1: <i>Environmental Problems, Their Causes, and Sustainability</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities – Lecture and do the quiz for this week found on the web-assist site. | Homework Do the readings for this week found on the web-assist site. 4hrs. Review the videos and tutorials for this week found on the web-assist site 2hrs. Review the Power point Presentations for this week found on the web-assist site. 2hrs. Complete the Discussion forum found on the web-assist site for this week. |
| Class Date: <u>Week 1 – 17 September 2014</u> Chapter 2: <i>Science, Matter, and Energy</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities - Lecture and do the quiz for this week found on the web-assist site. | Homework Do the readings for this week found on the web-assist site. 4hrs. Review the videos and tutorials for this week found on the web-assist site 2hrs. Review the Power point Presentations for this week found on the web-assist site. 2hrs. Complete the Discussion forum found on the web-assist site for this week. |

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| Class Date: <u>Week 2 – 24 September 2014</u> Chapter 3: <i>Ecosystems: What Are They and How Do They Work?</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |
| Class Date: <u>Week 2 – 24 September 2014</u> Chapter 4: <i>Biodiversity and Evolution</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site.. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 3 – 01 October 2014 3</u> Chapter 5: <i>Biodiversity, Species Interactions, and Population Control</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |
| Class Date: <u>Week 3 – 01 October 2014</u> Chapter 6: <i>The Human Population and Urbanization</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 4 – 07 October 2014</u> Chapter 7: <i>Climate and Biodiversity</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |
| Class Date: <u>Week 4 – 07 October 2014</u> Chapter 8: <i>Sustaining Biodiversity: The Species Approach</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 5 – 15 October 2014</u> Chapter 9: <i>Sustaining Biodiversity: The Ecosystem Approach</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> <p>.</p> |
| Class Date: <u>Week 5 – 15 October 2014</u> Chapter 10: <i>Food, Soil, and Pest Management</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site._ | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> <p>.</p> |

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| Class Date: Week 5 – 15 October 2014 Chapter 11: <i>Water Resources and Water Pollution</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |
| Class Date: Week 6 – 21 October 2014 Chapter 12: <i>Geology and Nonrenewable Minerals</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 6 – 21 October 2014</u> Chapter 13: <i>Energy</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> <p>.</p> |
| Class Date: <u>Week 7 – 28 October 2014</u> Chapter 14: <i>Environmental Hazards and Human Health</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 7 – 28 October 2014</u> Chapter 15: <i>Air Pollution, Climate Disruption, and Ozone Depletion</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> <p>.</p> |
| Class Date: <u>Week 8 – 05 November 2014</u> Chapter 16: <i>Solid and Hazardous Waste</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | <p>Do the readings for this week found on the web-assist site. 4hrs.</p> <p>Review the videos and tutorials for this week found on the web-assist site 2hrs.</p> <p>Review the Power point Presentations for this week found on the web-assist site. 2hrs.</p> <p>Complete the Discussion forum found on the web-assist site for this week.</p> |

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| Class Date: <u>Week 9 – 12 November 2014</u> Chapter 17: <i>Environmental Economics, Politics, and Worldviews</i> | Homework Due Date: <u>By the end of the next week</u> |
| In Class Activities | Homework |
| Lecture and do the quiz for this week found on the web-assist site. | Do the readings for this week found on the web-assist site. 4hrs. Review the videos and tutorials for this week found on the web-assist site 2hrs. Review the Power point Presentations for this week found on the web-assist site. 2hrs. Complete the Discussion forum found on the web-assist site for this week. |

This course has an in-class final exam. Final exam date: 19 November 2014

Additional Final Exam Information:

Method of Instruction

Instructional techniques must be appropriate, and at a collegiate level, to the specific goals and objectives, i.e. intended learner outcomes, cited above. Students and instructors must have a clear understanding of the intended learner outcomes to be mastered and time requirements of the course, the nature of the course context, and the method of evaluation.

The method of instruction is primarily lecture and provides instruction in theory, principles, or practices of the discipline. The instructor will provide classroom presentations in a variety of lecture formats. Methods of instruction must fulfill the intended learner outcomes and competencies stated in the course goals and objectives

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and are appropriate to the capabilities of the students. For career oriented courses, the instructor must demonstrate that an effective relationship exists between curricular content and current practices in the field.

Effective instruction depends largely upon the maintenance of an environment conducive to study and learning. For this reason, the instructor must provide for his/her students a learning environment in which scholarly and creative achievement is encouraged in the classroom.

Additional Class Notes

Go to <http://www.openeducation.org/moodle> to use the Web-Assisted site for this course. Quizzes and discussion forums will be completed on-line at this site; and all other assignments will be uploaded there.